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AP3 Rec'd PCT/PTO 18 JUN 2008

Amended Patent Claims (Art. 19 PCT)

- 1. A method for producing a blank for a component of laser active quartz glass, comprising the following steps:
 - a) providing a dispersion with a solids content of at least 40% by wt. which contains SiO₂ nanopowder and dopants, including a cation of the rare earth metals or of the transition metals in a liquid,
 - b) granulation by moving the dispersion with withdrawal of moisture until the formation of a doped SiO₂ granulate of spherical porous granulate grains having a moisture content of less than 35% by wt. and a density of at least 0.95 g/cm³,
 - c) drying and purifying the SiO₂ granulate by heating to a temperature of at least 1000°C with formation of doped porous SiO₂ granules having an OH content of less than 10 ppm, and
 - d) sintering or melting the doped SiO₂ granules in a reducing atmosphere withformation of the blank of doped quartz glass, including a gas pressure sintering, which comprises the following steps:
 - heating the SiO₂ granules to a melting temperature of at least
 1600°C while applying and maintaining a negative pressure;
 - bb) holding at the melting temperature at an overpressure ranging from 5 bar to 15 bar for a melting period of at least 30 min with formation of the quartz glass blank;
 - cc) cooling the quartz glass blank while maintaining an overpressure.
- 2. The method according to claim 1, characterized in that an initial solids content of at least 50% by wt. is set in the dispersion.
- The method according to any one of the preceding claims, characterized in that the SiO₂ granulate obtained according to step b) has a BET surface
 area ranging from 40 m²/g to 70 m²/g.

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- 4. The method according to claim 3, characterized in that the SiO₂ granulate obtained according to step b) has a BET surface area of at least 50 m²/g.
- 5. The method according to any one of the preceding claims, characterized in that the spherical porous granulate grains have a grain size of less than 500 μm.
- 6. The method according to any one of the preceding claims, characterized in that the SiO₂ granulate is dried and purified under a chlorine-containing atmosphere.
- 7. The method according to any one of the preceding claims, characterized in that the SiO₂ granulate is dried and purified at a temperature of at least 1050°C.
 - 8. The method according to any one of the preceding claims, characterized in that drying and purifying of the porous granulate is performed under an oxygen-containing atmosphere.
- 15 9. The method according to any one of the preceding claims, characterized in that the porous SiO₂ granules obtained according to step c) have an OH content of less than one wt ppm.
 - 10. The method according to any one of the preceding claims, characterized in that the porous SiO₂ granules obtained according to step c) have a BET surface area of less than 20 m²/g.
 - 11. The method according to any one of the preceding claims, characterized in that the SiO₂ granules are thermally densified prior to step d).
 - 12. The method according to any one of the preceding claims, characterized in that the quartz glass blank is annealed at a temperature of at least 1120°C for a retention period of at least 40 h.
 - 13. The method according to any one of the preceding claims, characterized in that the SiO₂ granules according to step d) are molten in a mold.

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- 14. The method according to any one of the preceding claims, characterized in that the SiO₂ blank according to step d) is three-dimensionally homogenized.
- The method according to any one of the preceding claims, characterized in that a bulk body with a radially inhomogeneous refractive index distribution is formed from SiO₂ granules of different refractive index, and that the bulk body is sintered or molten to obtain the SiO₂ blank.
 - 16. Use of an SiO₂ blank obtained according to a method as claimed in claims 1 to 15, as a core material for a fiber laser, as an optical filter or as a cladding tube for laser.